LEVEL 1 DATA PROCESSING
(VERY) ROUGH DRAFT DOCUMENTATION
10/22/02

general info

- All programs create log files in /arc/logs/process and data files in /arc/logs/data.
- These programs can/should be run on a cron for continuous processing of raw data. The best way to do this is to have the cron run a shell script that then calls the processing program with the desired inputs.
- They all use the following tokens:
  - adb_name
  - adb_pro_que
  - proclev1 – this is an optional token; if not found it defaults the 't' of the shef code to '1'. It only needs to be added if an office wants to use something else to denote level 1 processed data.

process_precip

Program to convert 'raw' precipitation accumulator (PC) data from the PECRSEP table to processed level 1 precipitation increments (PP) to be stored in the following tables:

(1) PEHPSEP - PPH - hourly increment (0z-1z, 1z-2z, etc.)
(2) PEQPSEP - PPQ - six-hourly increment (0z-6z, 6z-12z,etc.)
(3) PEDPSEP - PPD - daily increment (12z-12z)

The processed value of the shef code 't' is read from the token 'proclev1'. If this token is not found, the default value is '1'.

An attempt is made to smooth the raw time series (get rid of up and down reports) and to recognize when a gage has been reset.

Quality control of data is handled in two ways:

(1) Use of the SENSOK table
(2) Simple quality checks within the program

Command Line arguments (optional, can also be entered within program):

(1) data source for list of stations to process:
  a) db = create list from database
  b) file = read list from file (with format LID PEDTSEP)
  c) sok = called from sensok program

(2) depends on data source from above
a) which stations to process
i) all = all in ingestfilter with PC
ii) new = only those with 'new' reports
b) file name
c) lid
(3) depends on data source
a&b) type of processing:
i) all - 24, 6, 1 hour increments
ii) dly - 24 hour only
iii) six - 6 hour only
iv) hrly - 1 hour only
v) dlysix - 24 & 6 hour
vi) sixhrly - 6 & 1 hour
vii) dlyhrly - 24 & 1 hour
c) pedtsep (shef code)
(4) depends on data source
a&b) start date for processing (YYYYMMDD)
c) date of sensok entry
(5) depends on data source
a&b) end date for processing (YYYYMMDD)
c) time of sensok entry

Command line arguments also control 'debug' and 'test' modes, these must be input before the inputs listed above:
-d = debug mode, write everything to the log file
-t = test mode, do not copy output shef file to
the shef_decode_pro directory

transfer_precip

Program to move 'raw' incremental precip (PPD, PPQ, PPH) from the PEDRSEP and PECRSEP tables to 'processed' tables: PEDPSEP, PEQPSEP, PEHPSEP.

***Please note: PPQ and PPH transfer one less day than PPD because need first day of data as buffer for finding 0Z value.

The processed value of the shef code 't' is read from the token 'proclev1'. If this token is not found, the default value is '1'.

Quality control of data is handled in three ways:
(1) Use of the SENSOK table
(2) Simple quality checks within the program

(3) Qual_code from PEDRSEP table

Command Line arguments (optional, can also be entered within program):

(1) data source for list of stations to process:
- a) db = create list from database
- b) file = read list from file (with format LID PEDTSEP)
- c) sok = called from sensok program

(2) depends on data source from above
- a) which stations to process
  - i) all = all in ingestfilter with HG or HP
  - ii) new = only those with 'new' reports
- b) file name
- c) lid

(3) depends on data source
- a&b) start date for processing (YYYYMMDD)
- c) pedtsep (shef code)

(4) depends on data source
- a&b) end date for processing (YYYYMMDD)
- c) date of sensok entry

(5) depends on data source
- a&b) none
- c) time of sensok entry

Command line arguments also control 'debug' and 'test' modes, these must be input before the inputs listed above:
- -d = debug mode, write everything to the log file
- -t = test mode, do not copy output shef file to the shef_decode_pro directory

process_stage

Program to convert 'raw' instantaneous stage (HG) and pool (HP) and flow (Q*) data from the PECRSEP table to processed level 1 hourly flow (QR) and storage (LS) and flow (Q*) readings to be stored in the PEHPSEP table.

The processed value of the shef code 't' is read from the token 'proclev1'. If this token is not found, the default value is '1'.

Quality control of data is handled in two ways:

(1) Use of the SENSOK table

(2) Use of the RIVERCRIT table

Command Line arguments (optional, can also be entered within program):

(1) data source for list of stations to process:

a) db = create list from database
b) file = read list from file (with format LID PEDTSEP)
c) sok = called from sensok program

(2) depends on data source from above
a) which stations to process
i) all = all in ingestfilter with HG or HP
ii) new = only those with 'new' reports
b) file name
c) lid

(3) depends on data source
a&b) start date for processing (YYYYMMDD)
c) pedtsep (shef code)

(4) depends on data source
a&b) end date for processing (YYYYMMDD)
c) date of sensok entry

(5) depends on data source
a&b) none
c) time of sensok entry

Command line argument for controlling which value to use for screening high flows. The default is to use the 'ultimate' or damscreen value. To change this use the following, must be input before the inputs listed above :

-high = use the 'highscreen' value

Command line arguments also control 'debug' and 'test' modes, these must be input before the inputs listed above:

-d = debug mode, write everything to the log file
-t = test mode, do not copy output shef file to the shef_decode_pro directory

process_temp

Program to convert 'raw' instantaneous temperature data from the PECRSEP table to processed level 1 hourly temperature readings and daily max/min values to be stored in the following tables:

(1) PEHPSEP - TA - hourly
(2) PEDPSEP - TX,TN - daily max/min

Max/mins determined through this program will not overwrite values that enter the database as raw max/mins and are moved to level 1. The raw max/mins are given a quality flag of 'V' when moved and the best flag from this program is 'S'.

The processed value of the shef code 't' is read from the token 'proclev1'. If this token is not found, the default value is '1'.

Quality control of data is handled in two ways:

(1) Use of the SENSOK table
(2) Simple quality checks within the program

Command Line arguments (optional, can also be entered within program):

(1) data source for list of stations to process:
    a) db = create list from database
    b) file = read list from file (with format LID PEDTSEP)
    c) sok = called from sensok program
(2) depends on data source from above
    a) which stations to process
        i) all = all in ingestfilter with TA
        ii) new = only those with 'new' reports
    b) file name
    c) lid
(3) depends on data source
    a&b) start date for processing (YYYYMMDD)
    c) pedtsep (shef code)
(4) depends on data source
    a&b) end date for processing (YYYYMMDD)
    c) date of sensok entry
(5) depends on data source
    a&b) none
    c) time of sensok entry

Command line arguments also control 'debug' and 'test' modes, these must be input before the inputs listed above:

-d = debug mode, write everything to the log file
-t = test mode, do not copy output shef file to the shef_decode_pro directory

transfer_txn

trans_txn.ec: Program to move 'raw' max/min temperature data from the PEDRSEP table to the 'processed' table PEDPSEP.

Max/mins determined through this program are given a quality flag of 'V' so that values computed by process_temp program will not overwrite.

The processed value of the shef code 't' is read from the token

'proclev1'. If this token is not found, the default value is '1'.

Quality control of data is handled in three ways:

(1) Use of the SENSOK table
(2) Simple quality checks within the program
(3) Qual_code from PEDRSEP table

Command Line arguments (optional, can also be entered within program):

(1) data source for list of stations to process:
    a) db = create list from database
    b) file = read list from file (with format LID PEDTSEP)
    c) sok = called from sensok program
(2) depends on data source from above
    a) which stations to process
        i) all = all in ingestfilter with HG or HP
        ii) new = only those with 'new' reports
    b) file name
    c) lid
(3) depends on data source
    a&b) start date for processing (YYYYMMDD)
    c) pedtsep (shef code)
(4) depends on data source
    a&b) end date for processing (YYYYMMDD)
    c) date of sensok entry
(5) depends on data source
    a&b) none
    c) time of sensok entry

Command line arguments also control 'debug' and 'test' modes, these must be input before the inputs listed above:

-d = debug mode, write everything to the log file
-t = test mode, do not copy output shef file to
    the shef_decode_pro directory

process_sw

Program to pick out the 12z snow water equivalent value from the 'raw' time series data in the PECRSEP table and move it to the PEDPSEP table.

The processed value of the shef code 't' is read from the token 'proclev1'. If this token is not found, the default value is '1'.

Quality control of data is handled in two ways:

(1) Use of the SENSOK table
(2) Simple quality control within the program

Command Line arguments (optional, can also be entered within program):
(1) data source for list of stations to process:
a) db = create list from database
b) file = read list from file (with format LID PEDTSEP)
c) sok = called from sensok program
(2) depends on data source from above
a) which stations to process
i) all = all in ingestfilter with HG or HP
ii) new = only those with 'new' reports
b) file name
c) lid
(3) depends on data source
a&b) start date for processing (YYYYMMDD)
c) pedtsep (shef code)
(4) depends on data source
a&b) end date for processing (YYYYMMDD)
c) date of sensok entry
(5) depends on data source
a&b) none
c) time of sensok entry

Command line arguments also control 'debug' and 'test' modes, these must be input before the inputs listed above:
-d = debug mode, write everything to the log file
-t = test mode, do not copy output shef file to
the shef_decode_pro directory

process_flow:

proc_q.ec: Program to move 'raw' daily flow data from
the PEDRSEP table to the 'processed' table PEDPSEP.

The processed value of the shef code 't' is read from the token 'proclev1'. If this token is not found, the default value is '1'.

Quality control of data is handled in three ways:
(1) Use of the SENSOK table
(2) Simple quality checks within the program
(3) Qual_code from PEDRSEP table

Command Line arguments (optional, can also be entered within program):

(1) data source for list of stations to process:
    a) db = create list from database
    b) file = read list from file (with format LID PEDTSEP)
    c) sok = called from sensok program

(2) depends on data source from above
    a) which stations to process
        i) all = all in ingestfilter with HG or HP
        ii) new = only those with 'new' reports
    b) file name
    c) lid

(3) depends on data source
    a&b) start date for processing (YYYYMMDD)
    c) pedtsep (shef code)

(4) depends on data source
    a&b) end date for processing (YYYYMMDD)
    c) date of sensok entry

(5) depends on data source
    a&b) none
    c) time of sensok entry

Command line arguments also control 'debug' and 'test' modes, these must be input before the inputs listed above:

-d = debug mode, write everything to the log file
-t = test mode, do not copy output shef file to
    the shef_decode_pro directory